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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/457,434	12/07/1999	EDWARD S. ELLIS	HEN-9910	7681

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EXAMINER

JOHNSON, JERRY D

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 05/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/457,434

Applicant(s)

ELLIS ET AL.

Examiner

Jerry D. Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haun et al.

Haun et al, U.S. Patent 5,114,562, teach a mineral oil conversion process which includes hydrodesulfurization and hydrogenation steps performed in separate reaction zones. The subject invention specifically relates to the hydrogenation of distillate petroleum fractions to produce low sulfur content products including diesel fuel and jet fuel (column 1, lines 7-13). The feedstock could include virtually any middle distillate (column 4, lines 5-6). Desulfurization conditions employed are those customarily employed in the art for desulfurization of equivalent feedstocks (column 4, lines 29-31). The effluent stream of the desulfurization zone is stripped with a stream of hydrogen-rich gas prior to being fed to the hydrogenation zone (column 6, lines 36-47). The vapor phase portion of the reaction zone effluent stream is partial condensed and the hydrocarbon fraction is preferably passed into the hydrodesulfurization zone to ensure its complete desulfurization (column 6, line 60 to column 7, line 16). The vapor phase stream from the hydrogenation step is highly rich in hydrogen and relatively low in hydrogen sulfide and is "cascaded" to the hydrodesulfurization zone (column 8, lines 3-15). While Haun et al. differ from the instant claims in showing cocurrent flow of hydrogen and hydrocarbons through the reaction zones and a process wherein the stripping gas is the vapor phase product from the second reaction stage, the process of Haun et al is not limited to this manner of operation and hydrogen-rich gas may flow countercurrent to the liquid-phase hydrocarbons through one or

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more reaction zones (column 8, lines 26-33). Additionally, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use at least some of the vapor phase product from the second reaction stage as a stripping gas because Haun et al. teach that the stripping gas and vapor phase product are both "hydrogen rich" gases. Further, while Haun et al. teach a process wherein hydrogen treat gas is cleaned to remove hydrogen sulfide and recycled, it would have been obvious to omit steps of cleaning and recycling hydrogen treat gas if one did not want to receive the benefit of said steps.

Applicant's arguments filed February 18, 2004 have been fully considered but they are not persuasive.

Applicants argue

the instant invention claims the use of once-through hydrogen-containing treat gas, which is cascaded from the second reaction zone. This once-through hydrogen containing treat gas comprises all of the vapor product exiting the second reaction zone. None of the vapor exiting the second reaction zone is used within a recycle loop around the second reaction zone as taught by Haun. (Remarks, page 7).

Applicants' argument lacks merit.

Applicants' claims do not exclude a recycle stream as taught by Haun et al., i.e., a recycle stream is not a product stream. Accordingly, applicants' claims are not patentably distinguished from the process of Haun et al.

Applicants argue

Haun does not teach the addition of fresh hydrogen directly into the second reaction zone as presently claimed. Instead, Haun teaches to add fresh hydrogen into a stripping zone and use the vapor from the stripping zone, after H₂S removal and pressurization, along with a portion of the vapor product from the second reaction zone, as the treat gas in the second reaction zone. (Remarks, page 8).

Applicants' argument lacks merit.

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Column 7, lines 51-57 of Haun teach

[i]n this instance the catalyst of the second reaction zone is divided between two separate vessels 24 and 27 with interstage cooling by indirect heat exchanger 26 in line 25 for steam generation. A single vessel could be employed and cooling could be provided in other ways, as by hydrogen quench injected into the reaction zone.

Accordingly, Haun teaches the addition of fresh hydrogen directly into the second reaction zone as claimed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

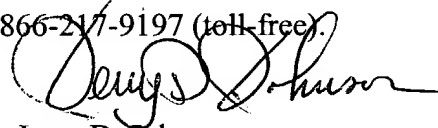
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry D. Johnson whose telephone number is (571) 272-1448. The examiner can normally be reached on 6:00-3:30, M-F, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jerry D. Johnson
Primary Examiner
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